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4D XREF

4D XREF is the cross-referencing utility for 4th DIMENSION. Use it to view and print procedures, variables, commands, externals, structures, and layouts from a 4th DIMENSION database. If you are using MultiFinder, you can run 4D XREF and 4th DIMENSION at the same time, improving your development efficiency.

This manual contains the following sections:

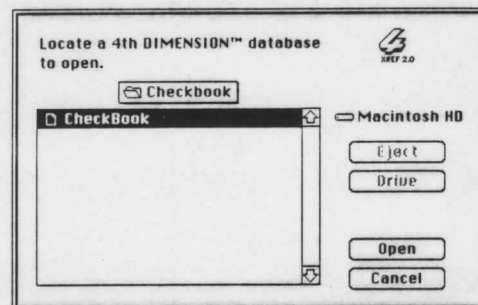
- A 4D XREF Quick Start
- Viewing your database
- Printing a cross-reference
- Using the advanced features of 4D XREF

Quick Start

This section explains how to open a database and begin using the cross-referencing utility.

1. Launch 4D XREF.

An Open File dialog box appears.



2. Select the 4th DIMENSION database you want to work with and click Open.

If a password access system has been set up for the database, you must enter the designer password to proceed.

NOTE: You cannot cross-reference a compiled database.

XREF opens the structure file for the database and builds the cross reference. You will see the following progress indicators during this process, which can take a few minutes, depending on the size of the database.

Global Procedures:
<div></div>
Layouts/Scripts:
<div></div>
Menu Bars:
<div></div>
Examining Layout Procedure: [Accounts].Input Press Command-Period (⌘-.) to Abort

3. Use the View menu to display information about the various elements in your database.

See the section "Viewing Your Database" on page 7 for complete information on displaying various types of cross referencing information.

4. (Optional) Use the Print item on the File menu to print all or part of your cross reference.

See the section "Printing" on page 18 for complete information on printing the cross reference.

5. (Optional) Choose Save As from the File menu to save your cross reference as a text file.

This optional step allows you save your cross reference as a text file so that you can open it in other programs such as a text editor.

6. Chose Quit from the File menu to quit 4D XREF.

Advanced Features

4D XREF contains several advanced features that are not covered here. These features include:

- The Preferences dialog box
- The Open Special menu
- XREF concurrent mode
- Using the XREF database

See the section "Advanced Features" on page 21 for more information.

Viewing Your Database

You can use XREF to see where various elements of your database are used, and to view some of those elements.

Working with the View Menu

Use the View menu to open and close windows that contain information about procedures, variables, commands, externals, the structure, and layouts.

View	
<u>P</u> rocedures	⌘1
<u>V</u> ariables	⌘2
C <u>o</u> mmands	⌘3
E <u>x</u> ternals	⌘4
✓ <u>S</u> tructure	⌘5
L <u>a</u> ysouts	⌘6
Stack Windows	

Choosing an item in this menu that is not underlined opens a window containing information about that item. An underline means that a window for that item is currently open. The checkmark indicates the active window.

Opening a Window

To open an XREF window:

- Choose one of the items in the top part of the View menu that is not underlined.

A window containing cross reference information about that element appears.

Closing a Window

To close an XREF window:

- Click the close box.

Stacking Windows

Your desktop can become disorganized when you have several windows open at the same time. The Stack Windows item in the View menu will neatly stack your open windows.

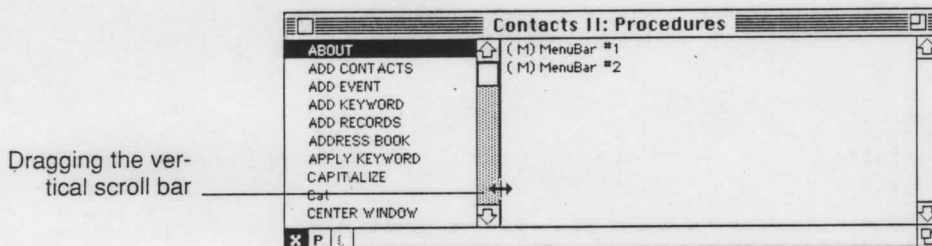
To stack your windows:

- Choose Stack Windows from the View menu.

Your XREF windows will be neatly arranged for you. You can use Stack Windows as often as you like.

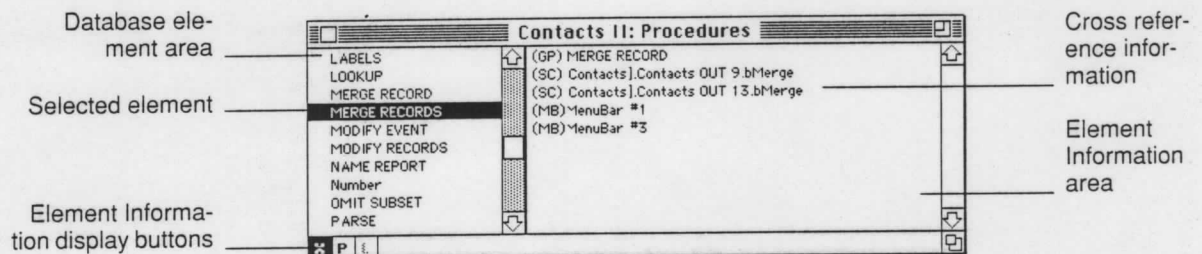
Resizing a Window

You can resize an XREF view window using the standard Macintosh window tools such as the grow box and zoom box. In addition, you can change the relative size of the two panels in the window by placing the mouse pointer over the right edge of the vertical scroll bar separating the two panels and dragging the scroll bar to a new location. See the illustration below:



Viewing a Cross Reference


Each type of database element is displayed in its own XREF window. The following illustration shows a typical XREF view window and the key elements of that window.



An XREF view window contains the:

- **Database element area** which is an alphabetical list of the elements for that window. For example, the window shown above is for procedures. Therefore, the list of elements is a list of procedures. If an element is in bold (red on a color system) it means that the element exists, but is not referenced anywhere in the database. If an element is in italic, it means that it is referenced, but does not exist.
- **Selected element**, which determines what element information is shown in the Element Information area.
- **Element Information area** which shows either the cross reference information for the selected element, or the procedure or layout for that element. The type of information that is displayed is controlled by the Element Information area display buttons.
- **Element information display buttons** that determine the type of information shown in the element information area.

Here is a description of each Element Information display button:

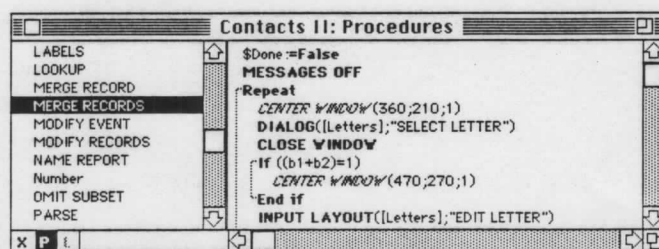
- Clicking  displays cross reference information in the Element Information area, as shown in the illustration above.

The types of cross references displayed are as follows:

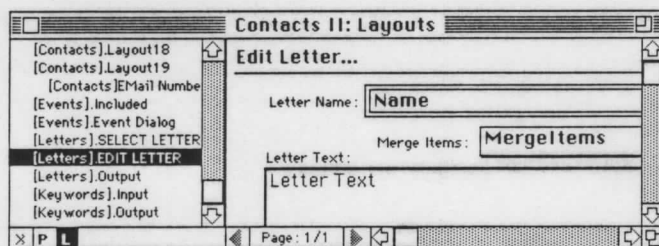
Type	Abbr.	Syntax
Global Procedure	(GP)	Procedure Name
File Procedure	(FP)	[Filename]
Layout Procedure	(LP)	[File].Layoutname
Script	(SC)	[File].Layout.Object
Menu bar	(MB)	Menu Bar#N
Layout	(LA)	[File].Layoutname

Double-clicking either a global procedure or layout cross reference in the Element Information area causes the selected element to change to that procedure or layout, and display the cross reference information for that procedure or layout.

- Clicking **P** displays the procedure for the selected element. An example procedure is shown below:



- Clicking **L** displays the layout for the selected element. An example layout is shown below:



One or two of the buttons may be dimmed depending on the type of database element you are working with. A dimmed button indicates that the corresponding display is not available for that element.

To view the various types of information in the Element Information area:

1. Open one of the six windows from the View Menu.
2. Click the desired Element Information display button.

The Element Information area displays the information you requested.

You can change the selected element by clicking on another element, or by typing the first letter of the element's name, or by using the arrow keys.

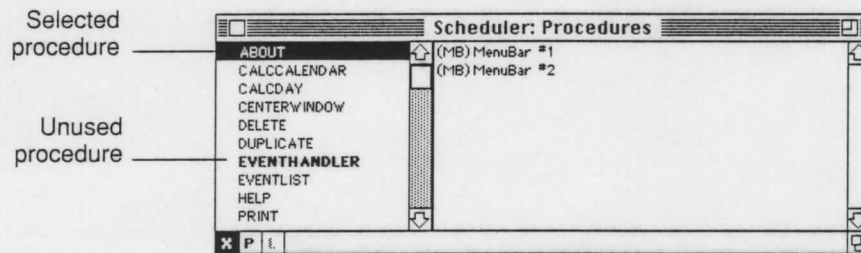
See the following sections for detailed information about working with each type of window.

Viewing Procedures

Use the Procedures window to see where global procedures are used in a database and to view the procedures. The following steps show you how to work with the Procedures window:

1. Choose Procedures from the View menu.

The Procedures window appears:



An alphabetical list of all of the procedures in the database is displayed in the Database Element area and the first procedure is selected. A procedure name in bold (red on a color system) indicates that the procedure is not called from anywhere in the database. A procedure name in italic means that the procedure is referenced, but does not exist.

2. Click the name of a procedure.

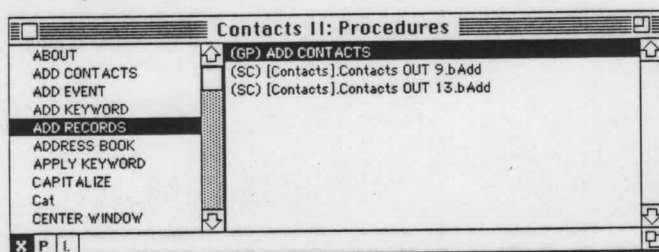
The element information area displays the cross reference information for the procedure that you selected. In the illustration above, the procedure *ABOUT* is called from MenuBar #1 and MenuBar #2.

3. Click the **P** button to see the procedure itself. Click the **X** button to return to the cross reference information.

When you are viewing a procedure, you can not make any changes to the procedure. You can do this only from within 4th DIMENSION.

Viewing a Cross Referenced Procedure

If the cross-reference indicates that a procedure is used by another global procedure or a layout procedure, you can obtain cross reference information about that procedure directly. Here is an example.



The *ADD RECORDS* procedure is used in *ADD CONTACTS*. To obtain cross-reference information about such a procedure:

- Double-click the name of a global procedure (GP), layout procedure (LP), or script (SC) in the Element Information area.

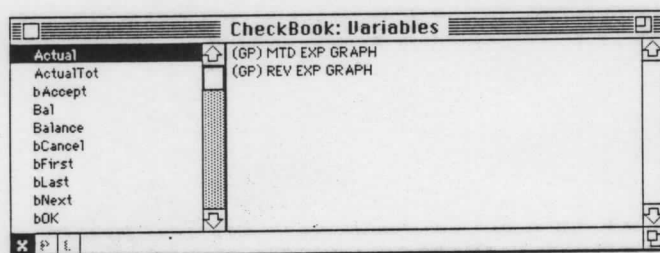
If you double-clicked a global procedure, the Procedures window changes to display the selected procedure and its cross reference information. If you double-clicked a layout procedure or script, the Layout window becomes the active window.

Viewing Variables

Use the Variables window to see where global variables are used in a database.

1. Choose Variables from the View menu.

The Variables window appears:



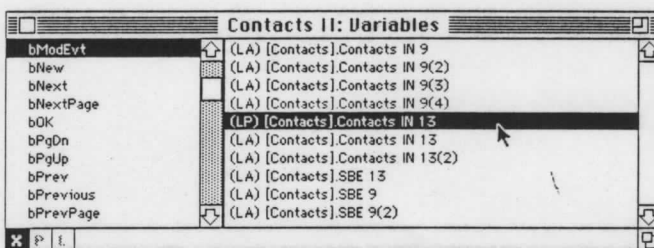
An alphabetical list of all of the global and local variables in the database is displayed in the Database Element area and the first variable is selected.

2. Click the name of one of the variables.

The Element Information area displays the cross reference information for the variable that you selected. In the illustration above, the variable Actual is used in the global procedures *MTD EXP GRAPH* and *REV EXP GRAPH*.

Viewing a Cross Referenced Procedure

If the cross-reference indicates that a variable is used in a global or layout procedure, you can obtain cross reference information about that procedure directly. Here is an example of a variable that is used in a layout procedure:



To obtain cross reference information:

- Double-click the name of a global procedure (GP) or layout procedure (LP) in the Element Information area.

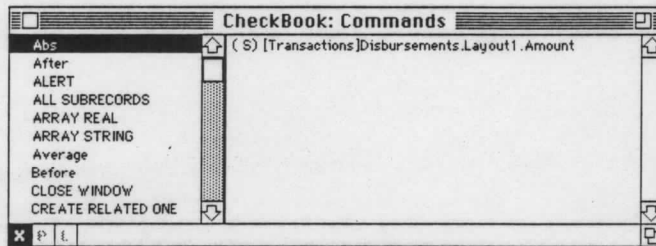
If you double-clicked a global procedure, the Procedures window becomes the active window. It displays the selected procedure and its cross reference information. If you double-clicked a layout procedure, the Layout window becomes the active window. It displays the selected layout and its layout procedure.

Viewing Commands and Functions

Use the Commands window to see where 4th DIMENSION commands and functions are used in a database.

1. Choose Commands from the View menu.

The Commands window appears:



The Database Element area displays an alphabetical list of all of the commands and functions used in the database. The first command is selected.

2. Click one of the commands.

The Element Information area displays the cross reference information for the command that you selected. In the illustration above, the function Abs is called from the script [Transactions]Disbursements.Layout1.Amount.

Viewing a Cross Referenced Procedure

If the cross-reference indicates that a variable is used in a global or layout procedure, you can obtain cross reference information about that procedure directly.

To obtain cross reference information:

- Double-click the name of a global procedure (GP) or layout procedure (LP) in the Element Information area.

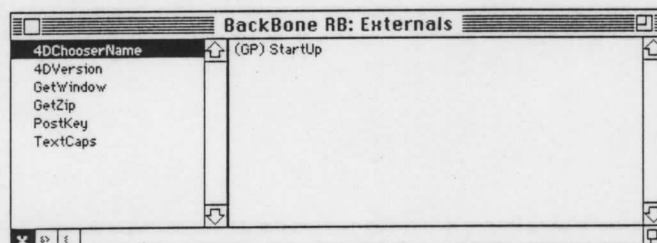
If you double-clicked a global procedure, the Procedures window becomes the active window. It displays the selected procedure and its cross reference information. If you double-clicked a layout procedure, the Layout window becomes the active window. It displays the selected layout and its layout procedure.

Viewing Externals

Use the Externals window to see where 4th DIMENSION externals are used in a database.

1. Choose Externals from the View menu.

The Externals window appears:



An alphabetical list of all of the externals used in the database is displayed in the Database Element area and the first external is selected.

2. Click one of the externals.

The element information displays the cross reference information for the external that you selected. In the illustration above, the external **4DChooserName** is called from the global procedure *StartUp*.

Viewing a Cross Referenced Procedure

If the cross-reference indicates that an external is used in a global or layout procedure, you can obtain cross reference information about that procedure directly.

To obtain cross reference information:

- Double-click the name of a global procedure (GP) or layout procedure (LP) in the Element Information area.

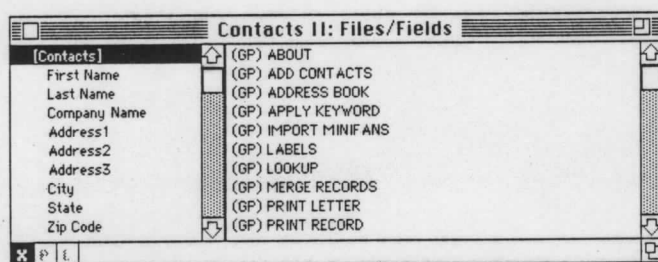
If you double-clicked a global procedure, the Procedures window becomes the active window. It displays the selected procedure and its cross reference information. If you double-clicked a layout procedure, the Layout window becomes the active window. It displays the selected layout and its layout procedure.

Viewing Structure Information

Use the Structure window to see where 4th DIMENSION files and fields are used in a database.

1. Choose Structure from the View menu.

The Structure window appears:



A list of all the files and fields in the database is displayed. The files are listed in the order in which they were created. The fields, shown below each file to which they belong, are also listed in the order in which they were created. Automatic relations are shown by an arrow pointing from the relating field in the many file to the related field in the one file. Files that are not referenced are shown in bold.

2. Click one of the file or field names.

The Element Information area displays the cross reference information for the file or field that you selected. In the illustration above, the filename [Contacts] is used in the global procedures *ABOUT*, *ADD CONTACTS*, and so forth.

Viewing a Cross Referenced Procedure

If the cross-reference indicates that a filename or field is used in a global or layout procedure, you can obtain cross reference information about that procedure directly.

- Double-click the name of a global procedure (GP) or layout procedure (LP) in the Element Information area.

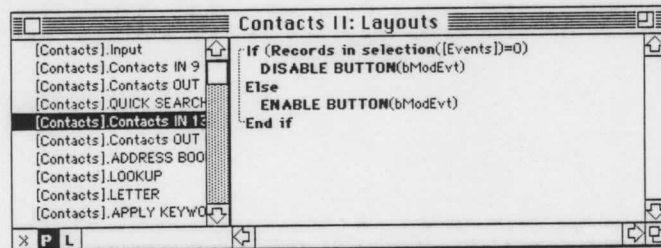
If you double-clicked a global procedure, the Procedures window becomes the active window. It displays the selected procedure and its cross reference information. If you double-clicked a layout procedure, the Layout window becomes the active window. It displays the selected layout and its layout procedure.

Viewing Layouts

Use the Layouts window to see where layouts are referenced in a database and to view the layouts. The following steps show you how to work with the Layouts window:

1. Choose Layouts from the View menu.

The Layouts window appears:



A list of all of the layouts in the database, grouped by file, is displayed in the Database Element area.

2. Click the name of one of the layouts.

On the right side of the window the element information area will display the layout procedure, if one exists, for the layout. In the illustration above the layout procedure for the [Contacts] Contacts IN 13 layout is displayed.

3. Click the **L** button to see the layout itself.



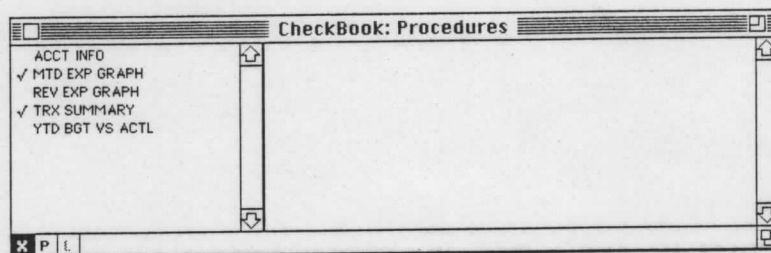
The number of pages for the layout is shown at the bottom of the Element Information area. You can display the various pages of the layout by clicking the arrows on either side of the page indicator. You cannot make any changes to the layout from the Layouts window. You can modify the layout only in 4th DIMENSION.

Printing

4D XREF can be used to print the same information that you can view. You can print some or all of the information for each of the different types of information provided by 4D XREF.

Selecting Elements to Print

4D XREF lets you print only those elements you want to print. You select elements to print in the various XREF view windows by marking them. For example, the following illustration shows several procedures marked for printing in the Procedure view window. (For more information on working with XREF view windows, see the section "Viewing Your Database" on page 7).



To mark an individual element to be printed:

- Double-click the element.

A checkmark appears to the left of the element you double-clicked.

To unmark an individual element to be printed:

- Double-click the marked element.

The checkmark disappears.

If you want to select most of the elements, it may be faster to follow these steps:

1. Choose Select All from the Edit menu.

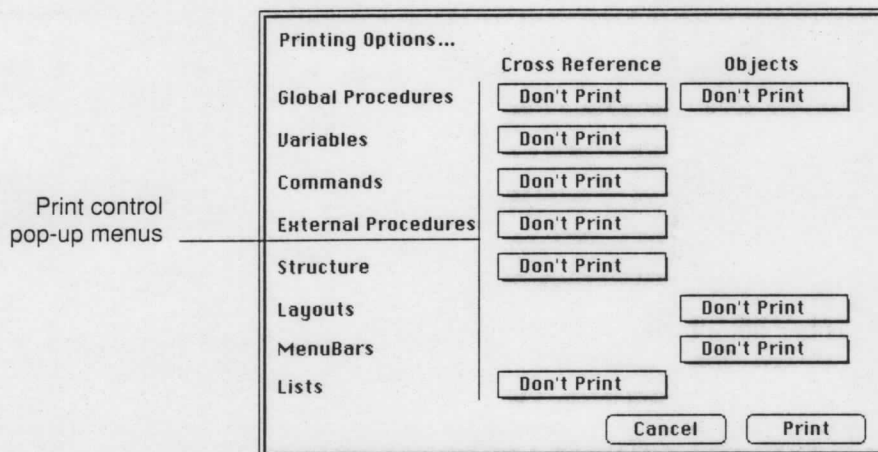
XREF marks all elements.

2. Unmark the elements you do not want to print by double-clicking them.

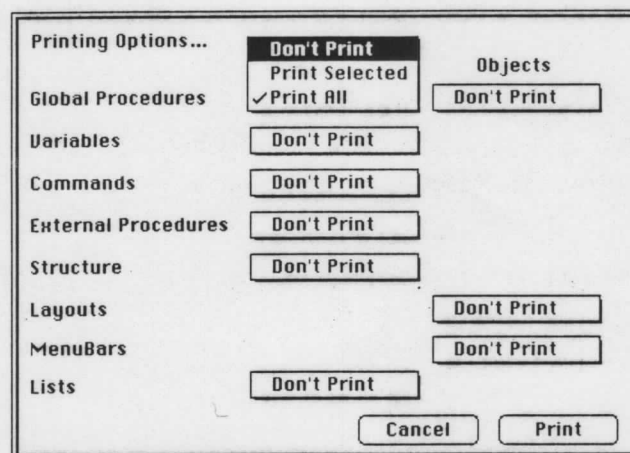
NOTE: You can chose Deselect All from the Edit menu to unmark all of the marked elements. You can also click on one item and then shift click on another below it. This will mark or unmark the two items and all items in between.

The Printing Options Dialog Box

Printing is controlled by the Printing Options dialog box. By default, nothing is printed, as shown below.

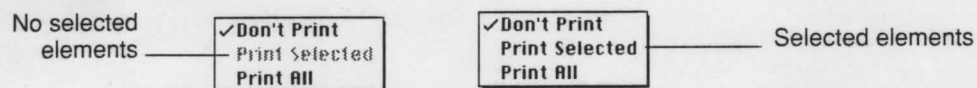


For each database element, a print control pop-up menu is used to indicate if none, some, or all of those elements are to be printed. In the illustration below, the print control pop-up menu for Global Procedures is shown in use.



To print either none or all of a particular element, simply choose these options from the pop-up menu. The Print Selected option is dimmed unless individual elements are marked. To use the Print Selected option, mark individual elements to print. For information on marking ele-

ments, see the preceding section, "Selecting Elements to Print" on page 18.



If you have previously marked some elements then this choice will be active in the pop-up menu.

To print a cross reference:

1. Choose Print from the File Menu.

The Printing Options dialog box appears.

2. Use the print control pop-up menus to select elements to print.

You can select to print none, some, or all of the items for each element.

3. Click the Print button.

Your cross reference will be printed. Printing an entire cross reference for a large database may generate many pages, be prepared.

Advanced Features

The 4D XREF contains a number of advanced features to make your use of the cross reference more productive. This section describes how to use:

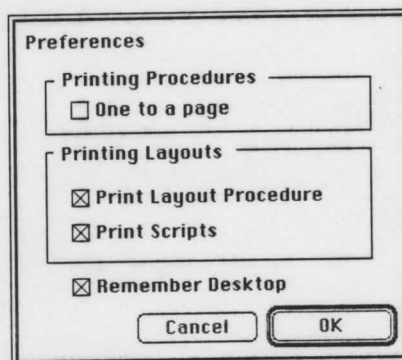
- The Preferences dialog box
- The customizable Open Special menu
- XREF with 4th DIMENSION in concurrent mode
- The XREF database

Setting Preferences

The 4D XREF Preferences dialog box lets you customize several aspects of the XREF. To set preferences:

1. Choose Preferences from the File menu.

The Preferences dialog appears:



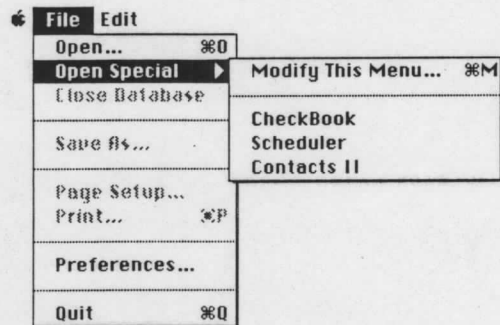
The following options are available:

- **One to a page** causes each procedure to be printed on a separate page. If this option is not selected, the procedures will be printed one after another, as many as will fit on each page.
- **Print Layout Procedure** causes the layout procedure to be printed whenever you print a layout.
- **Print Scripts** causes all the scripts associated with objects in a layout to be printed when you print the layout.
- **Remember Desktop** causes the XREF to remember which view windows were open the last time you used the XREF and to open those windows upon your next use.

The Open Special Menu Item

Use the Open Special menu item to make it more convenient to open cross references for databases that you work with frequently.

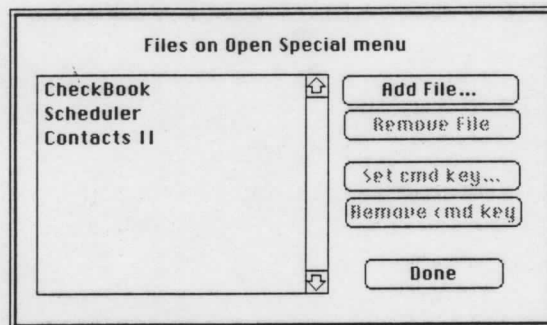
The Open Special menu item lets you build a hierarchical menu containing the names of the databases that you work with frequently. The following illustration shows the Open Special menu item with the names of several databases added to it.



To customize the Open Special Menu item:

1. Choose **Modify This Menu** from the **Open Special** submenu.

The Files on Open Special menu dialog box appears



2. Click **Add File** to add a new database to the menu.

An open file dialog appears.

3. Locate the structure file for the database you want to add and open it.

4. To remove a database, select it and then press **Remove File**.

The database is removed from the list.

5. To add a command key equivalent to one of the menu items, select it then press the Set cmd key button. Then press the key desired.

The command key equivalent is added to the selected item in the Open Special menu item.

6. To delete a command key equivalent, select the menu item and press Remove cmd key button.

The command key equivalent is removed.

7. Press Done.

Your modifications to the Open Special Menu are saved.

NOTE: If you rename, or move the database you have added to the open special menu, it will no longer open.

Using XREF with 4th DIMENSION in Concurrent Mode

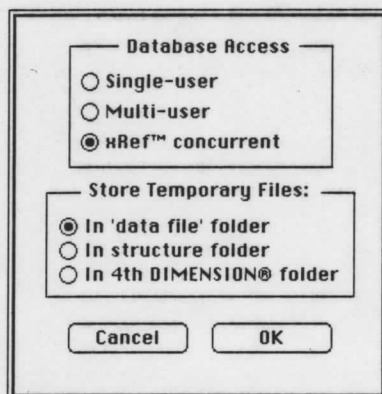
Use concurrent mode to work on a database with both XREF and 4th DIMENSION under MultiFinder. This can be very useful when you are developing or debugging a large 4th DIMENSION database. In concurrent mode, changes that you make to your database in 4th DIMENSION are reflected in its cross reference.

In order for the cross reference to be updated when you make changes to your database, you must first place 4th DIMENSION in XREF Concurrent mode.

To place 4th DIMENSION in XREF concurrent mode:

1. **Launch 4th DIMENSION and hold down the mouse button.**

The Database Access dialog box appears.



2. Click the xRef Concurrent radio button and click OK.

4th DIMENSION can now be used concurrently with XREF.

When using XREF and 4th DIMENSION concurrently, some changes you make in 4th DIMENSION will be reflected in XREF immediately; some will cause the XREF to rebuild automatically; while others will not appear until you rebuild the XREF manually. The following table shows what will happen in a various situations:

XREF will reflect changes immediately	XREF will rebuild automatically	XREF must be rebuilt manually
Modify a procedure	Add a procedure	Add a file
Modify a script	Add a script	Add a field
Modify a layout	Add a layout	Delete a procedure
Modify a menu		Delete a script
Add a menu		Delete a layout
Delete a menu		

If you modify a procedure, script, layout, or menu, you must close that item in 4th DIMENSION before you will see the change in the cross reference.

To rebuild the XREF manually:

■ Choose Rebuild entire XREF from the Edit Menu.

or

■ Choose Open from the File menu and reopen the database.

4D XREF rebuilds the cross reference, reflecting any changes you have made to your database.

Using the XREF Database

Included with 4D XREF is a 4th DIMENSION database that lets you maintain a database of the information in a cross reference. This database imports the ASCII text file created by the XREF. You will be able to print a master list of all objects, search and sort, and generate your own reports that describe how the various objects are used.

To use the database:

■ Open the XREF database with 4th DIMENSION and execute the global procedure **IMPORT XREF**.